

On page 11, line 7, change the numeral "22" to - 25 -.

On page 11, line 18, change the numeral "40" to - 34 -.

In page 13, line 11, delete the word "known" the first time it appears.

On page 14, line 10, after the word "frame" and before the word "data", insert the word - of -.

On page 14, line 27, after the word "and" and before the word "will", insert the word - it -.

IN THE CLAIMS

Please cancel claims 1 - 21 and add new claims 22 - 39. as follows.

-- 22. (New) A process comprising:

copying data to be transmitted over a network from a main memory in a host computer to a buffer memory in a network controller for so long as unused memory locations remain in said buffer memory;

commencing the transmission of said data copied from said main memory to said buffer from said buffer memory onto the physical link of a network when a threshold quantity of data has been copied from said main memory to said buffer memory; and

allocating memory locations in said buffer memory as being available for new frame data to be copied from said main memory upon successful transfer of a predetermined quantity of said data from said buffer memory over said physical link.

23. (New) The method of claim 22 wherein said predetermined quantity of data is a frame.

24. (New) The method of claim 23 wherein the step of copying data to be transmitted over a network from a main memory in a computer system to a buffer memory in a network controller for so long as unused memory locations remain in said buffer memory comprises

determining if said buffer contains a predetermined number of unused memory locations;

if yes, commencing copying of the next frame of data to said buffer memory;

upon completion of copying of said next frame of data, sending a transmit complete indication to said host.

25. (New) The method of claim 22 further including the step of recording statistics relating to the transmission of data over said physical link in memory locations in said controller accessible to said CPU on a need to know basis.

26. (New) The method of claim 22 wherein said network is a LAN.

27. (New) The method of claim 25 wherein said LAN is an Ethernet.

28. (New) The method of claim 22 wherein said buffer memory is a FIFO memory.

Sub 32
29. (New) A network controller system comprising:

a buffer memory communicating with a main memory in a host computer for storing data received from said main memory in parallel format and to be transmitted in serial format over a network;

a parallel to serial converter communicating with said buffer memory and said network;

A
a controller for controlling the operation of said network controller including supplying a frame transmit complete indication to said CPU immediately after the copying of a complete frame from said main memory to said buffer memory but prior to the actual complete transmission of said frame over the network, for commencing transmission of said data over said network upon receipt of a threshold quantity of data into said buffer memory from said main memory, and for causing buffer memory locations occupied by successfully transmitted frames to become available for data to be copied from said main memory.

30. (New) The system of claim 29 wherein said indication of frame copy complete is an interrupt writing to a particular location in main memory.

B
29
31. (New) The system of claim 30 wherein said indication of frame copy complete is a flag.

Sub B3
32. (New) The system of claim 29 further including statistics registers addressable by said CPU, said statistics registers being adapted to record transmit related statistics.

33. (New) The system of claim 32 wherein said transmit related statistics include a number related to the number of underrun conditions experienced and a number related to the number of collisions experienced.

34. (New) The system of claim 33 wherein said network is a LAN.

35. (New) The system of claim 33 wherein said LAN is an Ethernet.

36. (New) The system of claim 35 wherein said buffer has a storage capacity of at least two frames.

37. (New) In a method of transmitting a data frame from a computer having a system bus to which is connected a CPU running a network operating system with an upper protocol layer, a lower protocol layer and a driver layer, a main memory connected to said system bus and a bus mastering network controller connected to said system bus and having a parallel side, said serial side also connected to a physical link and a buffer memory connected between said parallel side and said serial side, the steps comprising:

in the parallel side:

determining if said buffer is full;

if yes, repeating step a;

if no, commencing writing a frame from said main memory to said buffer memory;

determining if all of said frame has read from said main memory;

if no, repeating steps a through d;

if yes, indicating to said driver layer that said data frame has been successfully transmitted;

determining if there are additional data frames in main memory to be transmitted;

if yes, repeat steps b through i;

if no, enter idle state;

in the serial side:

- A
- a. determine if a threshold quantity of data has been written to said buffer memory;
 - b. if yes, commence transmission of said data frame over said physical layer;
 - c. determine if said data frame has been transmitted;
 - d. if yes, indicate transmission complete to said parallel side and wait for next data frame written to said buffer memory.

38. (New) The method of claim 37 further characterized by the step of causing memory locations located in said buffer and occupied by said frame being transmitted by said serial side over said physical link to be reallocated for copying the next frame of data from main memory upon receipt by said parallel side of said indication of transmission complete from said serial side.

Sub B5 39. (New) The method of claim 38 further characterized by the step of recording transmission statistics after successful transmission of said data frame. --